

within the Society that assures that they meet the qualifications that you have in mind. Those people will get on the advisory committee who are interested in biological warfare for other reasons and who are regarded as safe and clearable. That is about the only criterion they satisfy. If the Service feels that it has achieved a great service from the Society in validating the most appropriate experts by the fact of their membership on this advisory committee, I think they are under a great delusion. ^{They just} ~~I~~ don't think they know how a society operates when that is the case.

Gen. Rothschild:

Of course there is always ~~an~~ agreement on this if the Society proposes somebody, Detrick in this case or the Research and Development ^{Command} demand that a ^{higher} ~~prior~~ agency approve them.

Dr. Lederberg:

Of course. But the Society doesn't propose anybody in a case of this sort. An officer of the Society does and using the Society to identify who some prominent microbiologists are. Rather than involve the membership of the Society in an issue about which they can't know very much why not just go after these people. You can get the list of officers of the ASM and if that's the criterion of excellence in microbiology and sometimes it is ~~isn't~~ and sometimes it isn't, but that information is public too. Nobody is keeping it a secret from the Army.

Question from the audience:

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Dr. Moulder

Q: I wonder if I could ask Professor Lederberg had you thought specifically what sort of biological catastrophe might result from uncontrolled research on biological warfare?

Dr. Lederberg:

Dr. Lederberg:

^{thought}
I ~~said~~ that was an extrapolation from the example I gave on dengue. They are mostly in that line, namely that agents will be widely disseminated for offensive purposes on the basis of what will necessarily be a very inadequate level of testing on security grounds and that even 10 or 100 or even 1000 people subjected to dengue virus under one set of conditions may be a very inappropriate basis to predict what will happen when much more massive populations are exposed under different conditions. One thing I should have stressed more clearly because it is in the back of my mind in all of this is that we don't know when the species is going to be subjected to another risk of decimation analogous to the black plague, analogous to the influenza pandemics and so on. There is not anyone who has ^{the} ~~not~~ a prophetic foresight to know when by the natural processes of the evolution of pathogenic microbes agents of this sort are going to come along. One reason that I had some sympathy for the certain activities in the field of biological warfare is that if public health can't justify the funds maybe the military security can go after the methods ~~the~~ of detection and ~~the~~ even the methods of large scale defense against the threat which in this case will have been from natural rather than artificial ^{sources} ~~forces~~. That is also a reason I would like to see that made more public so that it could be made more apt for this purpose. It seems to me that the surest way in which to bring about the development of a decimating pandemic is the selection of agents that have a marginal degree of incapacitation but are ^{highly} ~~are~~ infective and highly durable in the atmosphere in order to meet the other requirements of military security. There ~~re~~ there will be an enormous difference between trying it out ~~and~~ in an experimental basis on the few tens or a few thousands of individuals and leaving it out in nature subject to recombination and mutation on a ^{very} large scale on an offensive basis. That is the hazard that I am concerned about.

Question: Dr. Moulder

I was thinking about Gen. Rothschild's [?] ~~_____~~ .
 What do we know about ~~what happens~~ ^{when} even ~~make~~ a known infectious agent spread to a given locality. can we really start a pandemic with a known agent by spreading it over a ~~known~~ small locality.

Dr. Lederberg:

You've got starting a huge focus is what you're saying.

Question: Dr. Moulder

Yes. And can we reproduce ~~the flu virus picture in the lab~~
 That is can we take an agent and tailor a model agent that we can put ^{at} one point source and spread all over the world. That is what the pandemic flu virus does each time it [?] ~~_____~~ and will we be able to make a new agent Once we put it out in any one place we no longer have it under control. I don't think we can answer that on any conceivable experimental basis.

Dr. Rothschild:

I might mention one thing that you probably all familiar with. An epidemic is ^{of course} the result of a very complex set of circumstances that I don't think any one can plan on reproducing. So none of our military thinking in this field would ever plan on starting an epidemic. I would venture to say that the secondary effects, infections, from a primary biological attack are militarily unimportant. In other words a material put on dust that is picked up that people inhaled that ~~is moved on~~ ^{is} transmitted from person to person are militarily unimportant. You see, in this case, you must remember that no military agent including ^{these} ~~are~~ just used indiscriminately. We speak about small countries, for example, having the capability of using biological agents. Now to launch a sophisticated biological attack takes one whole of a lot of research and development .

Dr. Lederberg:

^{have done}
 Which we will regret over the next ten years and over the next 20 years

given over.

Dr. Rothschild:

Yes, except for details of actual munitions and so on. What ~~the~~ a small country could through relatively inefficient ways grow sufficient material and disseminate^{it} through fairly crude techniques practically modify commercial techniques for putting out various materials now in use, could launch an attack which could have a fair amount of effectiveness even though it isn't a very efficient one. So they could do this. But they certainly would never do this against a large country because there would be no mission, no purpose, no objective to the accomplishment. They have got to have one or they are not going to expose themselves to the possibility^{of} being found out and destroyed. Dr. Lederberg mentioned Egypt in this respect. I don't know if I would put it beyond Egypt to ^{use} ~~use~~ such an attack against Israel and take the ^{onus} ~~illness~~ after it is over. You know nothing succeeds like success. Once you have won then ^{let} ~~most~~ people talk about it. This is a possibility. As far as our own country is concerned it is difficult to visualize something like this. For example, ~~the~~ ^{it would be} very simple for a nation to disseminate the stem rust of wheat down in the Gulf of Mexico. We periodically have attacks of stem rust of wheat that start down in Mexico or in the Gulf area there and then on the winds move north. Some of them do a great deal of damage. It would not be difficult to initiate an epidemic of this sort. But with the dangers of being found out add the dangers of what the results would be when we did find out, no small country would do this. There must be a realistic military objective to be accomplished. *This has got me digressed from another point I was going to make but I'll quit here.*
Dr. Lederberg:

Well, let me pursue just that point because — ,

Dr. Rothschild:

May I go into it further. We wouldn't be starting an epidemic.

What I would like to ask ^{is} ~~is~~ your secondary effects, your public health measures can control them even though that a lot of people can get sick depending on the agents you are using. It may be an incapacitating agent where the damage isn't severe. But your public health measures can normally control this. As you know a normal epidemic ~~xxxxxxx~~ as you say starts from a small focus, spreads out slowly, the flu epidemic of 1918 I think took two years to get across the country. A military attack is quite different. ~~ixfi~~ If I wanted to attack a particular area I would hit that whole area with organisms airborne that people would inhale and they would all become ill, all those who were going to become ill who were going to become infected and contract the disease, at the same time. Now you can see why this is an effective military weapon. This means over the area I'm talking about your doctors become ill in the same proportion as other people, your nurses, your normal public health facilities, your transportation system people, all of them. So it is not like an epidemic that slowly develops and people drop out and somebody else comes in and takes their job. This area is pretty well knocked out. You can, for example, hit something like 10, 15 or 20% casualties, casualties don't mean net deaths, of course, it means people who are in this case ill. So you really ^{have} know^{ed} out an area. So I would like to ask the question, Dr. Lederberg brought up the pandemic idea, is there a danger of this sort of thing with our present ~~public~~ public health measures in the world, of a pandemic do you think?

Dr. Lederberg:

Of course there is. There is a danger that this will happen tomorrow with another influenza and ^{our existing} ~~I don't think~~ public health measures won't be able to do anything about it.

Dr. Rothschild:

If it was something like smallpox, we smash it right away because we can't treat smallpox. ^{but} ~~All~~ we can ~~do is~~ immunize people against it.

Question: Dr. Moulder

We have ^{of asiatic cholera} spreading a pandemic ^{its} may have power now, ^{and its probably} spreading slowly right along the old historic routes of spread. In Turkey and maybe Greece now. Modern Public health measures apparently ^{from this cholera expert} have ^{spread} does not changed the inexorable pattern of cholera.

Dr. Rothschild:

Is there enough effort being made?

Question: Dr. Moulder

There's a whole lot of effort being made. It's the big thing in world health right now.

Dr. Lederberg:

Well it plainly isn't enough, it isn't all that is possible to do from a technical standpoint. If we could develop that technical expertise to control infectious disease, I might regard it as even worth paying the cost of a biological warfare program at the same time. It is that lack of balance that we don't have that kind of world public health at a time when we are still playing with fire in these other directions. This is why I argue not for stopping this kind of research and development but for publicising it. Because I think it will be the very impact of the more general realization of exactly what is going on, exactly what techniques are available that will provoke more effort in these lines.

Dr. Douderoff:

I hear that we are attempting to develop more ^{infectious and} lethal agents ^{both} against animals or humans and plants. This is where there is a real danger, having a runaway pandemic of some sort. I also read in the paper the other day about several Germans ^{I think} who handled a monkey ^{and died} and I don't know ^{that was} what happened but ^{couldn't} if we start a thing like that, If indeed we are starting developing by mutation and selection strains of microorganisms that might give us a runaway like that. I don't know if we are doing this or not but I can generally observe ? .I can't see that this is a

I would like to make a remark about it Mike because I do not have privileged information in this area. It is my belief ~~that~~ based on what I've seen and has been published that no very sophisticated efforts are now entrained in ~~the~~ direction but some efforts are. Obviously efforts to produce more pathogenic agents are in the works and you occasionally hear reports on the genetics of virulence out of these laboratories and so on. I am personally ^{--this is just a personal conviction} not deeply alarmed about the level of effort now going on in this direction. I am concerned what ~~will~~ will happen if there is a 100 fold escalation of effort in biological warfare. And this I'm afraid is inevitably in the cards if we keep going as we have been. Each of the nations that might be involved in it is provoking the other, and it is that level of activity when as I say a 100 fold increase in the effort to produce more aggressive agents that might produce anyone of a large variety of calculated effects is when I think we really are in the soup. It is the anticipation of this vast expansion of this kind of suicidal effort that I would like us to stop right now. Because I don't think we will be able to stop it once we are committed that deeply to it.

is practical
I gather that the BW platform now as you say and that with respect to
? you believe that it's more humanitarian it ranks higher than some conventional weapons
It is cheaper probably too than certainly nuclear weapons. If we can do it why wait
what are the constraints that have prevented us from
employing these weapons.

It is very difficult to answer your question because it is a very involved thing. As I say we can't get enough discussion in our government at least we couldn't when I was there and I'm sure ^{about there} ~~now~~ from what ~~she~~ ^I ever find out

of these areas to arrive at a rational decision as to whether we should use them or not. It is all irrational. Now do you ask how does this come about. I think it comes about through the propaganda of WW I.

In WW I the Germans launched the first large scale gas attack. They were not the first ones to use gas, the French were. But they launched the first large scale gas attack using chlorine *at Ypres* which they released from cylinders and they hit an area of 5000 meters wide and ~~make~~ they did a lot of damage to particularly Canadian troops.

And if their Generals ^{had} had any faith in the new weapons which generals usually don't they would have had sufficient reserves behind that attack and they could have gone right through to the Channel. But they didn't have any more faith than the allied generals. The reason I say that is because the allied generals were told by intelligence repeatedly that this attack was going to be launched. But they didn't believe a new weapon could be used either so they were not prepared to defend themselves.

So here we were hit by a new ~~weapon~~ type of warfare, and at that time they had no defense against it except propaganda so they ~~started~~ started the propaganda machines going. They talked about this horrible new weapon and this inhumane ^{gas-} using *Hun* ^{was} this ~~is~~ a pretty good deal. It whipped up a lot of war spirit. It was very effective. So by the time we had protective measures, pretty crude but they worked, and ~~by~~ the time the allies were using ^{gas} very effectively and widely, we had found out that this propaganda was wonderful to whip up War spirit. So it kept on and ~~we~~ we inculcated certainly a whole generation of people with how bad chemical warfare was in spite of the statistics I just gave you. This has carried over. Now a lot of these same people are still in position ^{to influence} government policy and another thing is that from the military viewpoint war is pretty complicated as it is these days. And you just have one devil of a time training the normal soldier you get in all the

aspects of protection and offensive methods he has to use to fight a war. Therefore the generals also don't want to see a new method introduced *generally* because it is going to upset their applecart. They are going to have to think of something new. There is a different method of using this. To show you how ~~progress~~ ^{this} goes I was chemical officer of the Far East Command at the time of the Korean War. I kept fighting for a long time to get permission to use chemical agents in ~~the~~ ^{our} POW camps in North Korea. The reason being that the N. Korean ~~that~~ ^{who} was captured didn't stop fighting the war, he kept fighting the war. He had leaders in there, they organized riots. We had to shoot them constantly, machine guns and rifles, And this is wonderful propaganda for the enemy. And they kept fighting, of course the leaders were always in the back where they weren't going to get shot. Well I finally got permission, of course I had to go through the War Dept. at the time, to use tear gas and vomiting gas in the POW camps. We stopped those riots quickly and there was no more propaganda. But I was present at one of the POW camps when a riot started. And I watched them. Now these soldiers had had a lot of training in this. we sent over a lot of special people to train them. So the rioters *were right here*. Now with a tear gas grenade which burns from anything from 30 seconds to 2 minutes depending what you are using, what you do is throw it up wind and let the vapor go down over the people. They didn't do that. They threw it right at the people. So this half didn't get any because the wind ~~didn't go~~ ^{was} blowing this way. These people could throw it ~~this way~~ back and could get out of it. Here is a very simple approach that requires ^{new} ~~no~~ thinking. Our police are exactly the same way in this country. *We could bust up...* This was tried in Buffalo I think it was. We had all the riots this last summer and they were expensive in life and property. In Buffalo somebody decided they were going to try and do something about this and they trained a number of squads who were ready to go out immediately to use tear gas.

So what happened? As soon as they got to a focal point of trouble, they didn't wait till this grew to a riot, they broke up the crowd immediately with tear gas. This continued for four nights because they were trying to get started. But there ^{is} ~~was~~ relatively little damage done, there ^{is} ~~was~~ nobody killed, there is nobody injured. But it was effective. But here again the police have to think of new methods and they don't want to.

We have this new chemical Mace which you have probably heard about which ~~which~~ is this little spray can which the police can use and it will shoot for 15 or 20 feet. If it hits a man near the face it is going to knock him out pretty well. It contains some sort of a solvent that seems to expose nerve ends and just a tiny bit of teargas. It not only gives them the effect^s of tear gas but it really knocks them out. He is disoriented for 10 or 15 minutes. Very effective. You read not too long ago in the last few weeks about this man who lost his girl and he shot the guy she was going to marry I think. Took her into a second ^{story} building of a house and the police couldn't get at him. They pleaded with him and it didn't do any good. Finally he shot the girl and I think killed himself. The girl is very seriously wounded. All they had to do was to take an explosive type tear gas bomb which puts out just a puff of tear gas, not too much so that ^{in the small space} it won't kill anybody, throw that through the window and that man would have been completely incapacitated just like that. He couldn't have done a thing. but you see here again it is different type of thinking and people don't like a new type of thinking. This seems to be the main ^{thing} that holds us down. Then of course you run into the emotional standpoint resulting from the propaganda and resulting from people's dislike of war. Of course disliking war is a very logical answer. And I'm all with them. That is why I'm a member of the National Advisory Board of the United World Federalists which is trying to stop war, ^{that's what} this is.

Fighting war and trying to eliminate specific weapons of war are two different things. I don't think you can eliminate specific weapons of war and make it stick. When a nation gets in a hole, a bad enough hole, they are going to use them, ^{if} they think it is to their advantage. I think you can organizationally eliminate war if you can get nations to agree to it. I think it can be done with ~~an~~ safety to all nations. Eliminating weapons of war is different, and this has gone on all through the history. You know they tried to stop the long bow because it was inhumane. Up to that time knights with armour were practically safe. It was only the people on the ground who got killed. And this was a brutal type of warfare, a longbow would go through a knight. The same thing was true ~~of~~ when they tried to eliminate the submarine, for example. And the air craft at the *Hague* Peace convention in 1898. They also tried to eliminate gas then. Well the submarine ~~xxxxxx~~ didn't work because the French ^{I think} thought that it might be useful to them. The gas worked with a certain number of nations, all of which participated in WW I at the start and they used gas. So it didn't hold. I don't think you can eliminate weapons of war. I think you can possibly eliminate war but not the pieces of war. So there is no logic to why were not using it but we are not.

Question: *Levin*

You don't think that ^{the} concern that Dr. Lederberg has expressed has entered of unleashing Pandora's box.
Lederberg: At levels of public policy, I'm sure not
Levin

Dr. Rothschild:

It's closed as the same thinking as chemical warfare and there is no pandemic and you can start with chemical warfare or even epidemic

so I don't think that has had ^{a great} particular bearing.

Question:

^{I'd like to ask if you see any other way of getting rationality into}
~~Is there any other way~~ ^{Rationality}
 the decision-making processes other than the plan proposed by Dr. Lederberg; that is, complete public disclosure, making this in a sense a legitimate area of scientific inquiry involving the scientific community. That is why are you not enthusiastically behind this proposal?

Dr. Rothschild:

I think that in the state of the world as it is political today it just isn't possible. Unless you want to do it unilaterally, of course. I don't think you'll get agreement on this. In the area of testing nuclear weapons underground you remember we have been unable to get any agreement at all on it. On the Soviet side they won't take any inspection, and our side we say there's a faint chance of their getting away with something. The chances are pretty small. We have methods that would detect perhaps most of your bursts underground. But we don't have a complete ban on weapons yet. Because there is a faint possibility ^{that} some of these could go undisclosed. We have a good enough system so it would be practically impossible to get away with it but nobody will accept it. So when we talk about the other unless we are willing to do it unilaterally and I know I personally would not be we are stuck. Because there are things of value here in weapons, in munitions, and in agents that you don't just want to turn over to an enemy. ^{who} ~~you~~ might use them against you.

Dr. Lederberg:

I think there is a lot to be gained by ^{not} doing this unilaterally. But I think we lose a great deal by not taking the initiative towards negotiations. This in this area ~~in this~~ country is simply not doing that. I would be much more sympathetic to the line you took if we had made proposals ⁱⁿ and the UN or otherwise suggested a conference for the control of biological weapons

and for mutual disclosure, tried to work out exactly what level of ~~such~~ disclosure is possible and so on. We have taken absolutely no position on this point.

Dr. Rothschild:

It is not quite that bad. We have not made approaches on the system you have taken on complete disclosure. However there have been efforts made at Geneva to ban the use of biological warfare.

Dr. Lederberg:

I would like to know what ^{they are, what} American participation has been in this.

Dr. Rothschild:

We had three proposals very definitely to this effect, so have the Russians. But the trouble is these ^{are} a lot for propaganda purposes. But then when we get down to saying how will we inspect to see that people are complying, you can't get agreement. How are you going to know that you are getting complete disclosure, ^{they're} that ~~is~~ going to bring up the ~~complete~~ inspection thing again. So I don't object to the method but I just don't think that it has a chance of getting anyplace.

Dr. Lederberg:

I'm not informed about any initiatives that this country has taken in this area. On the contrary a number have been brought up I agree ^{entirely} for propaganda purposes. For example by Hungary in the UN and they have been left tabled. And there has been no response on the part of the US ^{at all to them}.

Dr. Rothschild:

No, we've made approaches, We have ~~always~~ had investigations by the arms control agency on methods of detection of violations of manufacture and testing of BW agents and ^{as you} ~~xxxxxx~~ say nothing has gotten anyplace. Whether our proposals are made in good faith I don't know. I think they are actually.

Dr. Lederberg:

I don't think any of our proposals have been pushed to the point that they have any degree of ^{public} visibility either to the American public or the Soviets and I think this is a difficult thing.

Dr. Rothschild:

Oh no, the Soviet is not ~~responsible~~ responding to these either.

Question: *Dr. Philip Wyatt*

I would like to get back to the main reason for holding this meeting and that is to discuss the Advisory ~~state~~ *Committee*

Dr. Clark:

q That comes in the second part of the meeting. We have the Chairman of the Advisory Committee here, we have a member of the Advisory Committee here.

Question:

?

to get the distinguished American *Society to volunteer*

What is the purpose of associating this Society with *those*

?

How do you get *scientific* opinion pushed deeply into the military? And how do you, I mean this is a political ^{pressure} type activity *that has to be done by someone* this Society has the means and the ability to do this. *I think this should be discussed*

Dr. Lederberg:

I would like to make a partial response to the remark you made because I think that there is a very important distinction. We are necessarily extremely sensitive down to the last iota on questions of security, disclosure, and inspection when it comes to nuclear weapons. There is just no doubt whatsoever that our ^{to the extent that military} security is security *at all that* but our life does depend on that. The argument that I would like to make is that we can afford to take a higher level of risk with respect to the same issues of inspection and certainty of compliance on the other side in

biological weaponry than we can in atomic weaponry. Precisely for the reasons that our survival as a nation does not depend on this. These are not valid ~~biological~~ weapons sufficiently proved out that they're going to be widely used anyhow in advance of some large scale premonition that they have in fact been tested. They are not in the same stage of development ~~as~~ that anybody can push a button and go ahead and do anything with them. I'm trying to say that just ~~we~~ because we are at a stage long before the large scale development and deployment of these agents we can afford to explore levels of confidence with one another in the world about biological agents that we couldn't tolerate with respect to nuclear ones. And that is why I think they are very good candidates for efforts at reaching some degree of mutual agreement at a level of confidence that wouldn't be sufficient to apply to nuclear weaponry.

Dr. Rothschild:

I'm not sure I agree with you on the nuclear weapons, Dr. Lederberg. It depends on the area you are talking about. If you are talking about ~~the~~ refinements of offensive techniques in nuclear weapons, it is hard for me to see how this is very important. As long as you have the power to destroy the other nation the refinements to me no longer seem to be very important. If you had a break through in defensive measures, which we haven't had, this is a different proposition. But the offensive power is so great and the ability to stop it at the present time is so limited that I'm not sure that you should exclude nuclear weapons from ~~this~~ sort of thing any more than you would biological ones. *weapons.*

Dr/ Lederberg:

Well, I'd be glad to carry it one step further but I guess I ~~guess~~ I was jumping one step ahead to the region of arms control. And assertions that we have in fact eliminated our stockpile of nuclear weapons is not something that we are about to do without very intensive inspection of machinery.

^{submit}
I ~~think~~ we can afford to enter into a treaty with respect to the disposition of stockpiles of biological weapons at a level of confidence that falls ~~af~~ far short of what we need in the nuclear area, and that is essentially what I was ^{driving at} ~~talking about~~.

Question: Joe Neilands

Gen. Rothschild, you mentioned ~~xxxx~~ questions about humanity ^{ad morality} in chemical and biological warfare but you didn't say much about the legality although you did say that the US is not ^{party} to an agreement prohibiting the use of these agents. ^{Now is it not a fact that the US has signed the Geneva protocol of 1925 although it has not been} although it may not be ~~g~~ratified is it not a fact tht it has been accepted ^{by} the descent opinion of mankind and most civilized nations. ^{Would you} advocate that the US ^{appear} ~~appearance~~ before ~~the~~ the court in session on the international war crimes tribunal ^{and defend the use of CS gas} in Vietnam.

Dr. Rothschild:

In answering your first question, our delegates did sign the Geneva gas protocol in 1925, it was not ratified so we're not signatory to it. When it comes to the descent opinion of mankind it depends on what it is based upon. Whether it is based on knowledge or [/] feelings. And my feelings and knowledge lead me to believe that there is much more defense for the use of chemical warfare if you have to fight a ^{war} ~~war~~ than there is argument against it. I suppose when you talk about decent feelings it reminds me of a sign I saw on a window over on Sutter street the other day. It says I love humanity, it is people I hate. I don't know how much respect I have for the general opinion of people unless they are informed people. So when you talk about defending the US for using C S gas in Vietnam I don't think a defense is necessary. I think that ~~it~~ ^{we} took humanitarian measures there which are much to our credit. It was our handling of the situation that was wrong. When this was first used, it happened to be by the South Vietnamese even though we supplied ^{it} in the beginning of 1965,

very stupidly, instead of the US saying we are going to use these things so that we can avoid shooting when women and children ^{who} are out in front of the Viet Cong as hostages, and this will allow us to break up the attack without shooting them, they kept quiet about the thing until it leaked out ~~an~~ through the reporters with an outcry all over the world. Then our administration was forced actually forced by the outcry into making a defense. The defense is very weak. They didn't have any position prepared and the defense they gave was about the weakest that you could possibly imagine. I heard Dean Rusk give it and I read some of the others. But the outcry died down immediately. Around this country the editorial content of the papers was very favorable which it hadn't been before because there was an explanation. This was done with good cause, it was done for humanitarian reason. So I don't think we need any defense further of using CS. I think it is a perfectly proper use. I think we could go further and use other agents also that would be to our credit.

Question: *Dr. Joe Neilands*
many

How ~~many~~ nation that signed the 1925 protocol?

Dr. Rothschild:

Oh, there are a fair number. It is possibly up, I'm just guessing now because I haven't looked recently. Say on the order of 50 or 60. But of course don't forget that both Ethiopia and Italy signed the protocol but Italy still used gas against Ethiopia in the Abyssinian campaign in 1936.

Dr. Lederberg:

Well let's not make that ^{part of any} ~~a~~ defense of American policy.

Dr. Rothschild:

Again I'm making the point that ^{well} These agreements mean well and I think our position is a sound one. ^{sound}

Quite sound.

Mark Achtman:

I'd like to bring up a couple of examples from ^{things you've said that I think} are very illustrative of many dangers involved in biological warfare and chemical warfare as well.

You've been talking about a chemical called ~~Mace~~ ^{some} which ~~a couple~~ ^{the} of people in this area have had quite intimate contact with having been sprayed with it in Oakland. One thing that became very obvious was that nobody really knew what the chemical was doing to the people. Nobody really knew what the lasting effects of this were. ~~The people~~ ^{which} were being used as test cases are quite unsure what permanent effects it will have on them. But the police were very happy to have ~~xxxxxxx~~ this incapacitating agent which they were quite happy to use on a crowd ^{which} ~~it~~ wasn't really all that dangerous but was ^{interfering} . The other illustration is that you seem uncertain ^{about} ~~what~~ the possibilities of a pandemic ^{being started} ~~mean~~ once you have had a huge ^{attack} ~~focus~~ of biological pathogens. This uncertainty or any lack of knowledge about something as complicated as this must negate any thought of using biological war because we just ~~don't~~ don't know what can happen, The danger is much too great and the advantage is too little to justify it.

Dr. Rothschild:

Well, you always have to remember you are comparing something against something else. When you talk about the use of ~~Mace~~ for example I know that if a policeman lays an 18 inch billy across a man's head it is going to do damage.

Mark ~~Achtman~~

To one man. That same ~~policeman~~ policeman can now spray...

Dr. Rothschild:

The mace chemical affects no one but the man that is hit and he even has to be hit somewhere near the face before it is going to affect him. It isn't going to affect anyone else in the area.

Mark: And the policeman is going like this

And now he has struck ^{twenty-} five people in that one easy stroke.

Dr. Rothschild;

Possibly, but the fact still remains, as I say you are comparing one weapon against another, whether it is in the hands of the police or in the hands of the service. An epidemic is very unlikely to be started and I ask the question here speaking generally of any pandemic in the world these days. I wasn't only speaking of one from a BW. It seems to me that the public health measures would tend to stop it. Of course when you go from epidemic to pandemic it depends on what volume you are talking about and we do have the cholera which is spreading. I have a feeling, and I'm not sure, that a sufficient world effort would stop the cholera epidemic from spreading. But we don't get the effort through various things. We don't get it through the desire of the world to do enough, or the countries to do enough. Now these countries are all of the backward countries again. And they don't put up the effort in these things and they don't get it from the world and the UN as a tool doesn't have that much effort at its disposal. I don't think that there is any reason that a pandemic can't be stopped in the world. But Dr. Lederberg would know a lot more about this than I do.

Dr. Lederberg:

No, I don't know anything about it, ^{and} but I don't think that anybody else does either and I feel we are ^{living in a fools paradise} going to get a ~~full~~ ^{full} ~~paradox~~ ^{paradox} ~~of you know~~ with respect to our security against world virus disease.

Question:

I've seen a Viet Cong publication ~~and~~ ^{our} on how ~~the~~ uses of gas are used in Southeast Asia and I spoke to (Dr. Rothschild: You mean South Vietnam.) years ^{I suppose the truth lies somewhere} between what we say we are doing and what they say we are doing. But they mention things like ~~somehow~~ ^{somehow} poison accidentally getting into food in concentration camps,

somehow the proper concentration of ~~lethal~~ defoliant being used
 and people were dying from too high a concentration being sprayed on the
 people instead of being tear gas it amounted to a very lethal chemical
 and another report of poisoned candy

Dr. Lederberg:

That was in Tihwana.

No that wasn't entirely facetious if I can anticipate your remarks.

That is clumsiness in dealing with very potent agents and it shouldn't

be condoned. ^{That clumsiness} ~~It~~ can occur in the service, it can occur in the police
 department and it oughtn't to be condoned ^{There ought to be} ~~without the~~ skilled use of any

of these agents. It has nothing to do with the philosophical issues
 about whether they're to be used at all.

Dr. Rothschild:

I think I can go a little bit further in answering this. Yes, their
 approach has been very advantageous to us. The agents that we have used
 as I say have been 24D, 2,4, 5T and carbolic acid. The toxicity to humans
 is exceedingly low. The NLF and the Viet Cong put out ~~it's~~ propaganda
 for the propaganda value and it has proven to be of great value to us.
 Because once we have used this material on an area the Viet Cong will
 never enter that area again and they won't eat any of the food that is
 in that area. The food that is lying out there, the drying fish and
 so on, ^{all} is perfectly edible. They won't touch ^{them} it. I've seen pictures
 for example, air photos, of the river leading up to I think it was Saigon,
 a beautiful curving river, there ^{was} ~~is~~ fire coming on our planes from this
 area on one side. They were warned as they always are by leaflets before
 we launch any attack whether it is with CS or anything else, with anticrop
 agents, they were warned to stop the fire ^{or} ~~in~~ the area ^{would} ~~or~~ be attacked. And
 they didn't. The area was laid waste with the anticrop agents. They won't
 go back in those areas which is very advantageous to us. They won't eat
 the food that they have ^{stored} ~~stored~~ there which is foolish. It is very difficult
 to substantiate their claim of forcing starvation on them because here in
 this picture on the other side of the river you see all these beautiful

fields still in bloom and on both sides of this particular field that they are having the trouble with the fields were still growing their crops.

I don't think there is any truth to the propaganda at all. This is nothing but that propaganda. Incidentally on CS every time we hit an area, I gave

you one example in operation Light Wing one of the large operations we have there, in this village there ^{was} ~~is~~ fire coming on our ^{helicopters and} ~~planes~~. ^A

We drop leaflets saying that you stop the fire or we are going to attack.

Well the fire didn't stop so again they dropped ~~the~~ leaflets and said

that we are going to attack this area with gas. Get out. Some of the villagers did and some didn't, I'm not sure they ^{all} had a choice. They then

did hit that village with CS, with the tear gas, followed up immediately with troops. they captured a number of Viet Cong and of course took over

the village and there wasn't anybody killed. There were no shots fired

at all. This is another example of the use of a humanitarian agent

properly applied. They have always dropped ~~these~~ pamphlets before they

attack any of these areas with anticrop agents. They tell the people

where they can go and get food too.

Question: Dr. Allen G. Marr

I have a question that is related to one raised by Professor Neillands. There's an implication that there's no legal or moral restraint on our participation in _____?

_____ scientists should be working on munitions _____?

_____ The implication of our not being officially satisfied as a signer of the Treaty perhaps is not an issue I'd want to face. Suppose out of the question of international law - in relation to the precedents of the Nuremberg trials, what would a scientist do when Dr. Rothschild: is fulfilling their citizen's duty by participating in some aspect of _____? I don't think this aspect came up in the _____ because _____ work?

You have got me in an area where I am a little bit shaky Cause I

haven't looked at these things for a long time. It seems to me your

applications there were when the measures that the doctors for example

were taking were against individuals, patients. This is what they considered

as crimes. I don't think this other comes under ~~these~~ any restrictions that

were considered there. I'm not quite sure of my grounds.

Dr. Healy
 Question: Boyer : Some of the last few questions have skirted the issue. *Are* biological weapons ^{really} more humanitarian than conventional weapons. *I think a* then the case can be made that they are even less humanitarian than conventional weapons. I think that some of your examples are very good as used in the concentration camps to quell rioting that is fine. I don't think the ^{first interest of the Pentagon and the} ~~interest to~~ military security ^{humanity} as it is to developing more weapons. They are interested in *for example* very effective weapons. Nevertheless the research is conducted under such conditions where you are maximizing the safety for the ^{integrity of your position} ~~integrity of~~ whereas like we probably ^{in the event} ~~great~~ use of biological weapons ^{out} carried as supplementary to conventional weapons. *Under these conditions I believe that it would be even more disastrous for the [?] to not be able to control [?] providing proper medical care for the large civilian population ^{be necessary}*

Dr. Rothschild:

I don't think necessarily the toxic weapons are supplementary to the conventional I think they are complementary more than that. They are used in their own area where they can do the most good. But as I say I think you have more control. You don't to kill. You see you drop an HE bomb or a shell, within the certain area you are going to kill everybody that is there and you are going to knock down what is there. In another area you are going to maim the people that are there unless they happen to be protected and in other area people aren't going to be hurt probably. But you have no control once you have launched that thing. Your control is completely gone. You take a biological weapon which you are specifically referring to which you are interested in here, you do have a level of control. You know the damage you are going to do. For

example, if you are using an incapacitating agent, you know that the people are going to die ~~xx~~ are going to within some range, some predeterminable range. In the case of an incapacitating agent it will be a low range.

Furthermore certainly with agents that we are talking about for our country you will not have long term residual effects which you do have with the ^{lethal. [ah]} conventional weapons. To me anyone who has ^{ever} seen anyone hurt through ~~trauma~~ weapons can be under no illusions of the suffering they undergo and we are used to encountering disease all the time. We don't like it.

Some of them you recover from without treatment, others you need treatment for and you suffer when you are going through them. but if you can recover from this and not have residual effects and you can control it, to me this is a lot more humane than the use of your normal HE weapons which are ~~trauma~~ weapons. Napalm, flaming gasoline for example, or fine particles of metal and so on.

Dr. Lederberg:

I think your remarks are strong arguments for more research on chemical warfare weapons to make sure they are developed to the point of efficacy where they can be relied upon. ^{separately} ~~separately~~ from the combined use of ^{any?} ~~many~~ others. I think as you pointed out pragmatically many commanders do not have this degree of confidence in new weapons and how important it will be in such cases where there will be civilian hostages and so on is a question of the humane ^{of a weapon} quality ^{going to be} through a commander under the condition of stress in a military situation. It is going to use every combination of his resources that he has ~~xx~~ at his disposal and the net ^{may be} result ^{no} different than will be whether he had chemical weapons or not. If they could be developed to the point of absolute reliability we may reach the ideal state that you are talking about. You can win a war without hurting anybody but I think it will impossible to get there. ^{we call a halt before we}

Dr. Rothschild:

You mention chemical weapons specifically. If the ~~shix~~ chemical weapons were used in war it wouldn't be more than a very short time before you officers and your men would be well qualified in the field. In the first place they are not well trained in defense now and the first gas attack against us would be disastrous. I assume any enemy would use it on a very large scale and our men would not protect themselves because you can't force them to protect themselves against something that the country says is not a humane weapon and we shouldn't use it and noone else should use it either. But go ahead and learn how to protect yourselves anyway. they don't learn. I think that your officers would learn how to use it offensively very quickly too. I think that you are ^{denegating} your Americans very ^{seriously} when you say that they would not want to use these ~~thex~~ ^{more} war humane weapons. I think they ^{definitely} would. You have examples in Vietnam. The Marine Corps Colonel who wouldn't call for fire on the village when flying over the village because there were civilians ~~where~~ and he got killed by ~~fixxx~~ fire from that village. This has been repeated ~~from~~ ^{after} time ^{after time} ~~to~~ time where we have lost lives of our people unnecessarily because we are not going to shoot at these villages where there are women and childred. This comes up repeatedly. So you give them a weapon whereby they don't have to kill the people there and they would be very happy to use it there I think.

Dr. Moulder: *Let me say first its a pleasure to be here and visit with this Northern California Branch.*

I have two purposes in coming, the first is the purpose for which I was asked, that is to answer questions about the advisory committee. And the second is to ask the questions of my own that I have about the Committee, the ASM and its attitudes toward biological warfare. Some of these questions I'd like to give you some tentative answers I have. Others I have no answer at all. And in the discussion I truly would like to get your answers and your thinking on these questions to use them in my own further thinking on the problem. I'd like to start out with a fairly light hearted account of my recent experiences at Chicago.

WE have a student newspaper called the Chicago Maroon. It is very much like all ~~the~~ college newspapers. In the second edition of the Maroon this year I was identified by our local SDS branch as "chief advisor to Fort Detrick." This has a lesson to us, to be more serious. And that is to ^{outside the Society} persons, the Committee appears to be an important and influential one. You may be sure that I contacted the Paper and attempted to assure ^{flattered as I was} them that I was not the chief advisor to Fort Detrick if indeed there was such a person. And I found in talking ~~xxxxxx~~ with the Maroon reporter who is a very intelligent and perceptive young man that it is very ~~xx~~ hard to explain the purposes and the objectives of the Committee to someone outside the Society. I think that is a lesson we should take, that the purposes and the objectives of the Committee are not easily defined as it is presently constituted.

I think the present function of the Committee is easy. ^{i.e.} ~~that~~ what it is doing now is, and I think that Dr. Romig will agree with me, it is a panel of once-a-year hopefully expert consultants who are ~~consulted~~ ^{and again he can correct me} on basic scientific programs at Fort Detrick and professional problems related to microbiologists at Fort Detrick. To my knowledge ^{and again he can correct me} they have not been consulted on general policy and the Committee has not been consulted on.